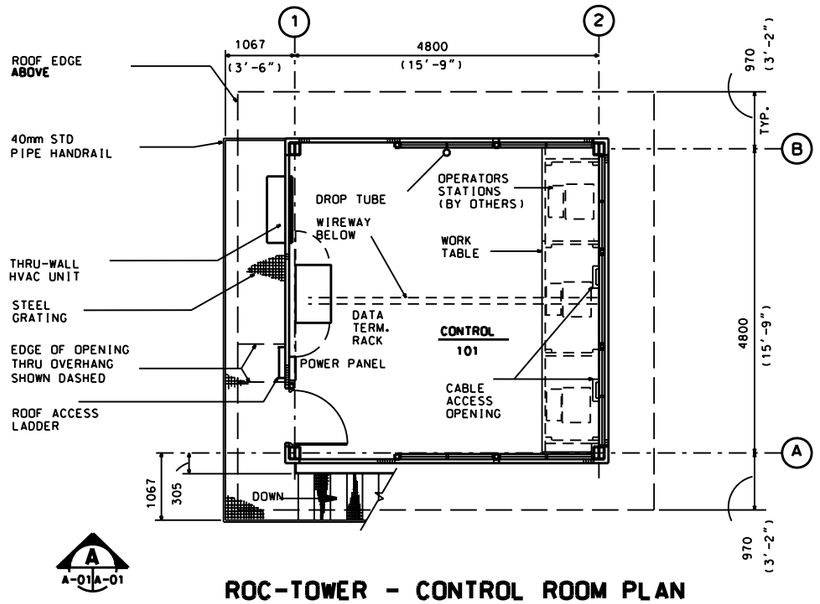

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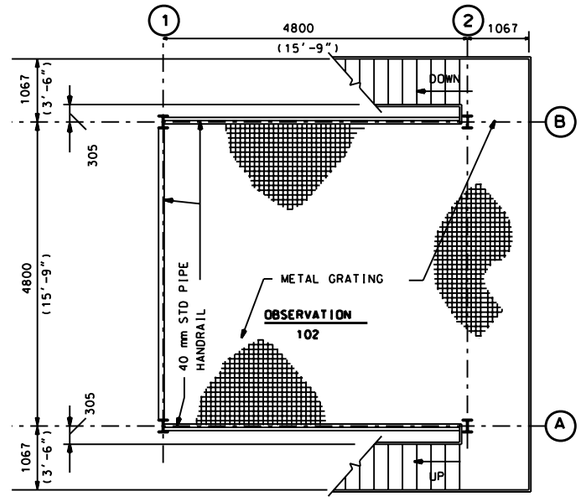
ROC-TOWER - CONTROL ROOM PLAN

SCALE : 1:100



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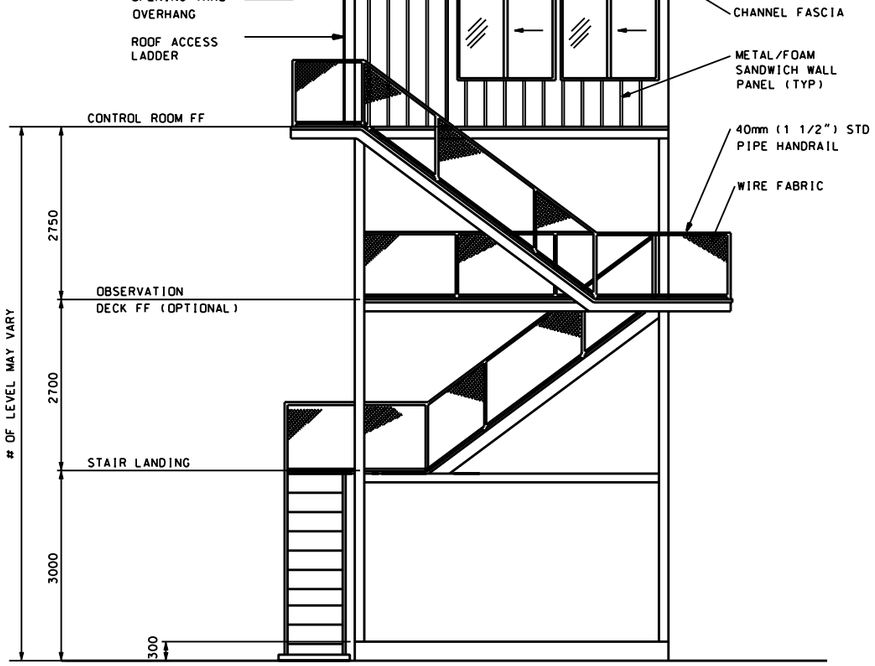
OBSERVATION DECK

SCALE : 1:100



ELEVATION

SCALE : 1:100

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GENERAL

The Range Operations Center (ROC) Tower provides space for personnel conducting training exercises and space for the installation of the required electronics and communications equipment. An optional observation platform can be constructed below the control room. enclosure of this level is also an option. The occupant load factor is 9.3 net sq. meters (100 sq. feet) (per person) based on a business use. See NFPA 101 table 7.3.1.2. The height of the tower is based on providing line of sight to the firing line and down range areas where required. All dimensions not labeled are in millimeters.

SITE ADAPTATION

This standard definitive design should be adapted to local conditions such as climate, available construction materials and techniques, topography, seismic zone and the existing character of surrounding buildings. These factors may affect plans, elevations and building systems. The building foundation must be designed based on the results of a geotechnical investigation.

REFERENCE CRITERIA

The design and construction must comply with applicable codes and standards including: technical instruction TI 800-01, "Design Criteria"; Department of the Army regulations, technical manuals, handbooks, standards, and specifications; UFC, IBC, NEMA, ANSI/TIA/EIA, UL, ASTM, NFPA, ASHRAE, etc..

FUNCTIONAL REQUIREMENTS

A work surface is provided for monitors, computers, printers and associated equipment. Windows are fixed and horizontal sliding to meet functional requirements. Provide polycarbonate security glazing in the door. Ice guards may be necessary in northern climates. The tower is accessed only by able-bodied personnel and does not require ADA compliance unless dictated by local criteria.

MECHANICAL

The Mechanical Equipment shall be selected and sized based on site requirements, local weather design criteria, available energy sources, and building construction materials. U-Factor requirements are based on the local climatic conditions in accordance with TI 800-1. The mechanical system must be sized to maintain an equipment operating temperature of +23.3 C (74 F) +/- 2.25 C (4 F) in rooms containing range communication equipment. Obtain communication equipment heat release from targetry supplier for HVAC load calculations and equipment sizing. HVAC design for personnel comfort shall be in accordance with UFC 3-410-FA with the exception of the indoor design temperature for cooling, which shall be 24 C (75 F). The addition of a Mechanical Room may be necessary to accommodate certain types of mechanical equipment. Route ductwork to provide an even distribution of conditioned air throughout the building to meet occupant comfort and outdoor air requirements. Provide diffusers and dampers to allow for manual balancing. Provide a drain to prevent condensate dripping on observation level and stairs below.

ELECTRICAL

The Tower shall be served by 120/240V, 1 phase, 3-wire secondary power. Rigid Steel conduit shall extend a minimum of 1524mm (5') outside of the building foundation for power and communication circuits entering and leaving the building. Voltage drop shall comply with standards in NEC and Army technical manuals. Grounding will be installed in accordance with NFPA 70, the NEC, and other applicable standards.
Receptacles shall be general purpose, 120V, 20A Duplex mounted 450mm (18") above the finished floor. Provide 120/240V power for the HVAC unit.
Illumination levels will be designed in accordance with IES. Interior lighting shall consist of fluorescent lamps at a level of 50 foot-candles. Incandescent fixtures with red lamps on separate switching shall be placed near each fluorescent lamp in the Control Room and on exterior walls of entrance. Exterior lighting shall be provided with separate switching located near points of egress.
The emergency electrical system shall comply with NFPA 70 and NFPA 101. Emergency lighting shall be provided to ensure adequate illumination to egress building in the event of a power outage.
Lightning protection in accordance with NFPA 780 and UFC 3-570-01 is required for this building in the form of pole mast protection or air terminals on the building.

TELEPHONE

Telephone service is not a requirement for range operations. However, service should be provided to the ROC if it is available in the area.

TARGETRY SYSTEM INTERFACE

In addition to the targetry fiber, the targetry system requires a fiber optic connection between the ROC and the AAR if one is included. The number of the Data Termination Rack depends on the number of fiber terminations from other ROCA buildings, targetry, and cameras. Coordinate the number of Master Data Panels (Racks) with the Targetry Supplier. Only one type of cable media is allowed to be run into the DTR for range training systems. A fiber connection to an AAR may dictate that fiber optic cables must be used from the ROC - Tower to the first target.

FIRE PROTECTION

Fire protection is not required per fire codes for this building. Consult local Fire Marshall for compliance with local requirements.

GRAPHIC SCALES

1:100 1000 500 0 1000 2000

US Army Corps of Engineers

Rev. | Description | Date | Approved

Date: 15 APR 05 | Design file no. | Drawing code | File name: Plot scale: Plot scale:

Designed by: | Cad by: | Dwn by: | Reviewed by: | Submitted by:

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE HUNTSVILLE, ALABAMA

4 MAY 2007

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL
RANGE OPERATIONS CENTER (ROC)
TOWER

Sheet reference number:
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